

S.C.

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/664,148	HOLMES ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	George R. Koch III	1734	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1.  This communication is responsive to 5/14/2004.
2.  The allowed claim(s) is/are 1 and 4-22.
3.  The drawings filed on 17 September 2003 are accepted by the Examiner.
4.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All
  - b)  Some\*
  - c)  None
  1.  Certified copies of the priority documents have been received.
  2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

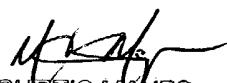
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6.  CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a)  including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.
  - (b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1.  Notice of References Cited (PTO-892)
2.  Notice of Draftsperson's Patent Drawing Review (PTO-948)
3.  Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4.  Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5.  Notice of Informal Patent Application (PTO-152)
6.  Interview Summary (PTO-413),  
Paper No./Mail Date 7/22/2004.
7.  Examiner's Amendment/Comment
8.  Examiner's Statement of Reasons for Allowance
9.  Other \_\_\_\_\_.

  
CURTIS MAYES  
PRIMARY EXAMINER

**EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Nicholas Gallo on 7/22/2004.

Replace the current claims with the following set of claims:

1. (Currently Amended) A method of forming a composite article from composite fiber tape, the method comprising:

irradiating at least one fiber tape with a laser diode array;

compacting the irradiated fiber tape against a workpiece such that the fiber tape conforms to the contour of the workpiece and is adhered thereto;

inspecting the fiber tape and producing an output representative of at least one characteristic of the fiber tape; and

automatically inspecting at least one system parameter defining an operational characteristic of the method based on the output,

wherein inspecting the fiber tape comprises inspecting images of the fiber tape after the fiber tape has been compacted.

2. (Canceled)

3. (Canceled)

4. (Original) The method of forming a composite article of Claim 1 wherein inspecting the fiber tape comprises detecting the tack of the resin of the fiber tape before compacting the fiber tape against the workpiece, and wherein automatically altering at least one system parameter comprises automatically altering the temperature of the fiber tape before compacting the fiber tape against the workpiece based on the tack of the resin of the fiber tape.

5. (Original) The method of forming a composite article of Claim 1 wherein inspecting the fiber tape produces an output representative of at least one characteristic of the fiber tape, the characteristics selected from the group consisting of temperature of the fiber tape, temperature of the workpiece, rate of placement of the fiber tape, compaction pressure, tack of the fiber tape, and placement of the fiber tape relative to another fiber tape.
6. (Original) The method of forming a composite article of Claim 1 wherein automatically altering at least one of the system parameters comprises automatically altering at least one system parameter selected from the group consisting of temperature of the fiber tape, temperature of the workpiece, rate of placement of the fiber tape, compaction pressure, tack of the fiber tape, and placement of the fiber tape relative to another fiber tape.
7. (Original) The method of forming a composite article of Claim 1 further comprising:
  - measuring the temperature in a plurality of sensing zones on at least one of the fiber tape and the workpiece; and
  - automatically and independently irradiating a plurality of irradiation zones in accordance with the measured temperature.

8. (Original) The method of forming a composite article of Claim 1 further comprising marking an area of the fiber tape to indicate a defect based on the inspection of the fiber tape.

9. (Previously presented) A method of forming a composite article from composite fiber tape, the method comprising:

irradiating at least one fiber tape with a laser diode array;  
compacting the irradiated fiber tape against a workpiece such that the fiber tape conforms to the contour of the workpiece and is adhered thereto;  
inspecting the fiber tape and producing an output representative of at least one characteristic of the fiber tape; and  
automatically inspecting at least one system parameter defining an operational characteristic of the method based on the output,  
wherein inspecting the fiber tape comprises measuring the molecular mobility of a resin of the fiber tape.

10. (Previously presented) The method of forming a composite article of Claim 9 wherein inspecting the fiber tape comprises inspecting images of the fiber tape after the fiber tape has been compacted.

11. (Original) The method of forming a composite article of Claim 9 wherein inspecting the fiber tape comprises detecting the tack of the resin of the fiber tape before

compacting the fiber tape against the workpiece, and wherein automatically altering at least one system parameter comprises automatically altering the temperature of the fiber tape before compacting the fiber tape against the workpiece based on the tack of the resin of the fiber tape.

12. (Original) The method of forming a composite article of Claim 9 wherein inspecting the fiber tape produces an output representative of at least one characteristic of the fiber tape, the characteristics selected from the group consisting of temperature of the fiber tape, temperature of the workpiece, rate of placement of the fiber tape, compaction pressure, tack of the fiber tape, and placement of the fiber tape relative to another fiber tape.

13. (Original) The method of forming a composite article of Claim 9 wherein automatically altering at least one of the system parameters comprises automatically altering at least one system parameter selected from the group consisting of temperature of the fiber tape, temperature of the workpiece, rate of placement of the fiber tape, compaction pressure, tack of the fiber tape, and placement of the fiber tape relative to another fiber tape.

14. (Original) The method of forming a composite article of Claim 9 further comprising:  
measuring the temperature in a plurality of sensing zones on at least one of the fiber tape and the workpiece; and

automatically and independently irradiating a plurality of irradiation zones in accordance with the measured temperature.

15. (Original) The method of forming a composite article of Claim 9 further comprising marking an area of the fiber tape to indicate a defect based on the inspection of the fiber tape.

16. (New) A method of forming a composite article from composite fiber tape, the method comprising:

irradiating at least one fiber tape with a laser diode array;

compacting the irradiated fiber tape against a workpiece such that the fiber tape conforms to the contour of the workpiece and is adhered thereto;

inspecting the fiber tape and producing an output representative of at least one characteristic of the fiber tape; and

automatically inspecting at least one system parameter defining an operational characteristic of the method based on the output,

wherein said irradiating step comprises independently irradiating a plurality of irradiation zones.

17. (New) The method of forming a composite article of Claim 16 wherein inspecting the fiber tape comprises inspecting images of the fiber tape after the fiber tape has been compacted.

18. (New) The method of forming a composite article of Claim 16 wherein inspecting the fiber tape comprises detecting the tack of the resin of the fiber tape before compacting the fiber tape against the workpiece, and wherein automatically altering at least one system parameter comprises automatically altering the temperature of the fiber tape before compacting the fiber tape against the workpiece based on the tack of the resin of the fiber tape.

19. (New) The method of forming a composite article of Claim 16 wherein inspecting the fiber tape produces an output representative of at least one characteristic of the fiber tape, the characteristics selected from the group consisting of temperature of the fiber tape, temperature of the workpiece, rate of placement of the fiber tape, compaction pressure, tack of the fiber tape, and placement of the fiber tape relative to another fiber tape.

20. (New) The method of forming a composite article of Claim 16 wherein automatically altering at least one of the system parameters comprises automatically altering at least one system parameter selected from the group consisting of temperature of the fiber tape, temperature of the workpiece, rate of placement of the fiber tape, compaction

pressure, tack of the fiber tape, and placement of the fiber tape relative to another fiber tape.

21. (New) The method of forming a composite article of Claim 16 further comprising:  
measuring the temperature in a plurality of sensing zones on at least one of the fiber tape and the workpiece; and  
automatically and independently irradiating a plurality of irradiation zones in accordance with the measured temperature.

22. (New) The method of forming a composite article of Claim 16 further comprising marking an area of the fiber tape to indicate a defect based on the inspection of the fiber tape.

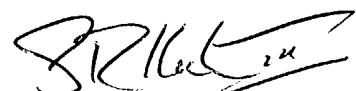
2. The following is an examiner's statement of reasons for allowance: With regard to claims 1, 3-8, the prior art of record, such as Lichtenwalner and Krause, disclose a method of forming a composite article from composite fiber tape comprising the steps of irradiating with a laser diode array, compact, inspecting, and automatically altering at least on system parameter. However, the prior art of record does not disclose that inspecting the fiber tape comprises inspecting images of the fiber tape after the fiber tape has been compacted. With regard to claims 9-15, the prior art of record, such as Lichtenwalner and Krause, disclose a method of forming a composite article from composite fiber tape comprising the steps of irradiating with a laser diode array, compact, inspecting, and automatically altering at least on system parameter. However, the prior art of record does not disclose that inspecting the fiber tape comprises measuring the molecular mobility of a resin of the fiber tape. With regard to claims 16-22, the prior art of record, such as Lichtenwalner and Krause, disclose a method of forming a composite article from composite fiber tape comprising the steps of irradiating with a laser diode array, compact, inspecting, and automatically altering at least on system parameter. However, the prior art of record does not disclose that the irradiating step comprises independently irradiating a plurality of irradiation zones.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (571) 272-1230 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-800-877-8339 and giving the operator the above TDD number. The examiner can normally be reached on M-Th 10-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



George R. Koch III  
Patent Examiner  
Art Unit 1734

GRK  
July 22, 2004



CURTIS MAYES  
PRIMARY EXAMINER